

Risk and protective factors for drug use: A scoping review on the Communities That Care Youth Survey

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Abstract— *Communities That Care Youth Survey (CTCYS) is a survey of risk and protective factors related to psychosocial behaviors, involving four domains: community, school, family, and peer/individual. The purpose of this scoping review was to evaluate the efficacy of measures of risk and protective factors for drug use by CTCYS, obtained in different cultures and countries, with the aim of cultural adaptation to Brazil. PubMed, SpringerLink, Scopus, and Web of Science were the databases consulted. Besides, we made a consultation with experts in the area and manual search among the references. The study followed the PRISMA protocol. Two reviewers independently undertook the selection and extraction data between January and March 2019, and a third researcher deliberated about the agreements on the process. After applying the inclusion/exclusion criteria, we selected 37 articles. Among the results observed in studies with CTCYS, the peer/individual domain showed the most significant association between risk factors for drug use in several countries: having friends who use drugs or who exhibit antisocial behavior, peer attitudes favorable to use was the highlight. In the other domains, the highest risks were: parenting attitudes favorable to drug use, poor management and family conflict, low commitment to the school, perception of drug availability in the community. The consistency of CTCYS findings in different countries demonstrates the efficacy of this instrument to measure risk and protection against drug use. Therefore, it proved to be a reliable tool for prevention research, which can be used in middle-income countries such as Brazil.*

Keywords— *Communities That Care Youth Survey, Drug use, Prevention system, Protective factors, Risk factor.*

I. INTRODUCTION

Planning preventive policies increasingly requires the inclusion of risk factor and protection indicators as an essential component in assessing prevention needs, as the main objective of prevention is to anticipate the constitution of the psychosocial problem, minimizing risk factors, and strengthening protective factors (Arthur et al. 2002; Sloboda and Petras 2014). Therefore, it is necessary to develop instruments that allow the measurement of these factors, validly and reliably, to guarantee the planning, monitoring, and evidence of preventive interventions.

In Brazil, the development of preventive strategies, programs, and policies is gradually taking shape, but they still fall short of the international requirements for

evidence-based practices (Abreu and Murta 2016; 2018; Pedroso and Juhasova 2018). Among the weaknesses are the few instruments available for measuring risk factors and protection against drug use, violence, and other psychosocial vulnerabilities (Correa 2014). There is the "Brazilian Youth Questionnaire", which has a psychometric validation process (Dell'aglio and Koller 2011) that assesses risk behaviors related to drug use, violence, suicide, and risky sexual conduct. The risk factors considered in it are intrafamily violence, violence in the community, conflicts with the law, sexual exploitation, and prejudice. The protection factors evaluated are a support network, access to leisure, spirituality, self-esteem, self-efficacy, and perspectives for the future. It is a long tool, involving many risky behaviors, less focused on drug use. Another instrument is

the "Risk and Protection Thermometer", applied in distance courses for the preventive training of public school teachers by UnB (Seidl, Leite and Sudbrack 2014). This instrument, however, does not have a psychometric validation process. We were unable to locate other instruments in our searches.

The Communities That Care Youth Survey (CTCYS) is considered an important tool in the area due to its comprehensive analysis of risk and protective factors and its ability to identify these factors in the territorial extension of the community (Baheiraei, Soltani, Ebadi, Cheraghi, Foroushani and Catalano 2014; Feinberg et al. 2007). It also allows us to acknowledge the prevalence of focused behaviors and how risk and protective factors are shared and interact in the studied population. Thus, based on this tool, it is feasible to build the community profile and, topographically, to map the territorial areas that should be priorities in order to guide the choices to preventive interventions (Arthur et al. 2002; Hawkins 2006).

A synthesis of several longitudinal studies about the etiology of antisocial behaviors in adolescents grounded the construction of CTCYS. Initially, it included measures for 23 risk factors and nine protective factors (Arthur et al. 2002). It was developed and validated in 2002 by North American researchers as a self-report questionnaire for adolescents aged 11 to 18, applied in schools at a class time. Its objective is to conduct a survey of risk and protective factors related to psychosocial behaviors such as alcohol and other drug abuse, antisocial behavior, and violence among young people, involving four domains: community, school, family, and peer/individual (Arthur et al. 2002).

Built-in the context of the Communities That Care (CTC) preventive system, CTCYS assumes the theory of CTC change to compose the strategy of community needs assessment, a fundamental step for the implementation of this system. The CTC developers realized that the success of the system implementation depends directly on an extensive. However, sensitive, valid, and reliable assessment of the community needs because the combination of risk and protective factors is always unique for each territory and needs to be measured empirically, serving as the basis for the planning of interventions (Arthur et al. 2007; Glaser et al. 2005).

Epistemologically, the public health approach founded CTC, incorporating elements of the Social Development Model (SDM). This theory studies antisocial and prosocial behavior by combining ideas of social learning, theories of control, and differential association. It considers that

positive bonds with the institutions surrounding the person promote the healthy development of young people in the communities (Brown 2015; Catalano and Hawkins 1996). In general, interventions, whose theoretical basis is the SDM, seek to promote prosocial bonds and reduce antisocial behavior in various stages of development and contexts. Therefore, they seek to enable relationships of reciprocity and to belong by making community involvement rewarding (Arthur et al. 2006; Pérez-Gómez and Mejía-Trujillo 2015). Longitudinal follow-up research has shown the effectiveness of this preventive model in communities (Hawkins et al. 2005; Hawkins et al. 2007).

The original scale of CTCYS shown that "reliability values for most scales are good, averaging about 0.78 across all of the scales. The risk and protective factors are correlated with the problem behaviors as expected, providing evidence of the construct validity of the scales as measures of the specified risk and protective factors" (Arthur et al. 2002, p. 596). The exploratory and confirmatory factor analysis included 121 items for the 29 factors, which resulted in five scales, four of which showed coefficients of internal consistency greater than 0.70, and one scale presented consistency less than 0.60. (Arthur et al. 2002). The scales indicated a good relationship between the factors and the drug use, our object in this review. In another psychometric analysis, it demonstrated consistent results on reliability and validity when applied to different race/ethnicity, gender, and age groups in the United States (Arthur et al. 2007; Feinberg et al. 2007; Glaser et al. 2005), Germany (Groeger-Roth, Frisch, Benit, and Soellner 2015), Iran (Baheiraei et al. 2014b), and Colombia (Mejía-Trujillo et al. 2015), among other countries. Regarding criterion validity, the results were homogeneous when assessing the effectiveness of CTCYS in predicting correlations with drug use in different countries. Considering the evaluation and psychometric properties of CTCYS as an instrument that can measure risk and protective factors, the purpose of this review was to evaluate the efficacy of these measures for drug use, obtained in different cultures and countries, with the aim of their cultural adaptation to Brazil.

II. METHOD

2.1 Study Design

We chose Scoping Review as the method because it is the ideal "tool to determine the scope or coverage of a body of literature on a given topic and give a clear indication of the volume of literature and studies available as well as an overview (broad or detailed) of its focus" (Munn et al. 2018, p. 2). The research question that

conducted the review was: Which is the efficacy of measures of risk and protective factors for drug use by CTCYS obtained in different cultures and countries? The components of the problem followed the acronym PECOS. Participants were children and adolescents, exposed to the application of CTCYS, without a comparison group (C not applicable), with risk and protection factors such as Outcome measures and mixed studies, with a predominance of cross-sectional studies as a type of studies. We used the description guidelines for reviewing the Preferred Reporting Items for Systematic Reviews and

Meta-Analyzes (PRISMA) (Moher, Liberati, Tetzlaff, and Altman 2009), without prior submission of a protocol.

2.2 Search tools and eligibility criteria

For this scoping review, we used databases recognized for their scope and focus on the field of health and prevention: PubMed, SpringerLink, Scopus, and Web of Science. Consultation with experts in the area was also an employed strategy, besides the manual search in the references mentioned in the selected articles.

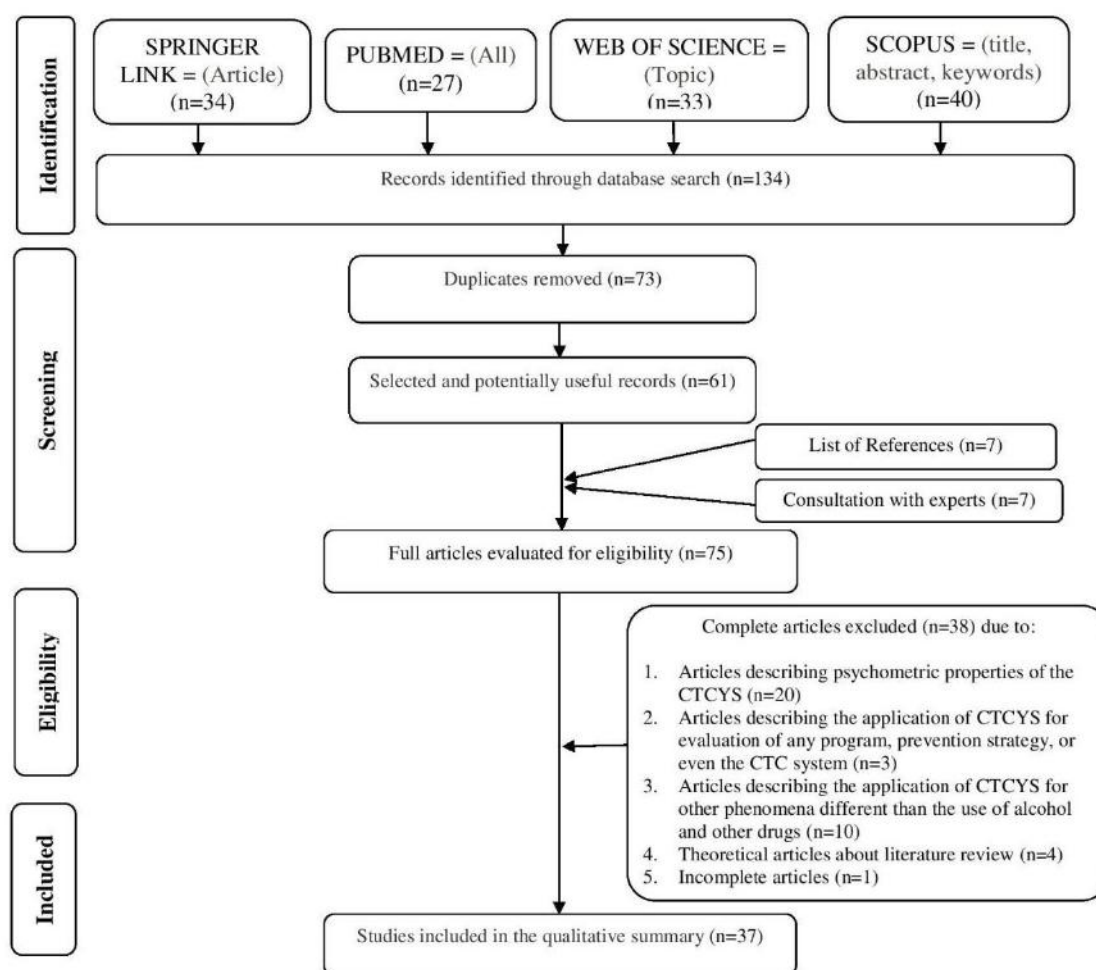


Fig.1: Flow chart of the strategy for the scoping review on CTCYS.

Source: Produced by the authors, based on the Prism Protocol model.

The search descriptor was the full name of the questionnaire in quotation marks. The inclusion criteria were: empirical research that used CTCYS in different countries to research drug use among young people and its association with risk and protective factors. In contrast, the exclusion criteria were: (1) articles describing psychometric validation or cross-cultural adaptations of CTCYS, because the authors produced another study who

describes these characteristics and submitted for publication; (2) articles describing the application of CTCYS to evaluate some program, strategy, or prevention system; (3) articles describing the CTCYS applications to another phenomenon than the drug use; (4) theoretical articles, literature review; (5) short articles (brief report, for example).

2.3 Data Selection, Extraction, and Analysis

Two independent researchers conducted the search process and called the third arbitrator to decide on the agreement of the process. Figure 1, adapted from the PRISMA Protocol, describes the selection process of the articles, conducted between January and March 2019. We sent the list of selected articles to the CTC International Forum group of experts to check if there were other articles not included due to the search strategies not detecting it.

Initially, the search in the referred databases found 134 studies that referred to CTCYS. Of these, 73 duplicates, leaving 61 articles, adding to the sample seven of it from the manual review of the references and another seven to the suggested by specialists, resulting in 75 articles to evaluation. The application of the exclusion criteria resulted in 37 texts included in this review.

For data extraction, the researchers created a standardized form using the Excel program with these indicators: year of publication, country, objective of the study, sample, design, version of CTCYS, factors, and domains of CTCYS, investigated phenomenon, and outcomes.

III. RESULTS

This section presents the systematization of information on the applicability of CTCYS in studies on risk and protective factors related to drug use behavior, describing the countries of the studies, the methodological designs, and relevant questions about the instrument, such as versions, factors, and domains used. Information on complete data from the 37 studies identified is presented in Table 1, made available in the online supplementary material. We describe the data on the association between risk/protection and drug use in the discussion section, concurrently with their critical analysis.

Among the selected studies, most came from the United States (n=12), the origin country of CTCYS. Another nation most productive was Australia (n=8), followed by Iran (n=4), and Colombia (n=4). Germany, Spain, Ethiopia, Malaysia, and Thailand presented only one article in the scope of this review. The sample included comparative studies, with the United States, who developed the instrument, with Australia (n = 3), and the Netherlands (n = 1). Publication dates ranged from 2004 to 2019, starting two years after developing the first version of the instrument (Arthur et al. 2002).

The most common design was the quantitative approach (n=36), and only one study presented a mixed approach to understanding the phenomena (Chan et al.

2016). Cross-sectional descriptive studies were the most frequent (n=26), followed by longitudinal cohort studies (n=9). Only one identified article used the longitudinal quasi-experimental design (Fagan et al. 2013).

The sample sizes used in the studies varied widely, with the smallest with 324 participants (Kuttler et al. 2016) and the largest with 118,074 (Feinberg et al. 2012). The latter refers to an epidemiological study that compared communities concerning underage drinking. Despite the diversity of countries using CTCYS, the studies conducted with the largest samples (over 14,000 participants) had their locus in the United States. They were generally related to large epidemiological studies developed in this country, except for a study conducted in Colombia with about 50,000 participants.

The original version of the questionnaire was the most used (n=26). However, some countries such as Australia, Spain, Ethiopia, Netherlands, and Thailand, when describing the version of the questionnaire used, mentioned the translation performed but did not refer to any article about cross-cultural adaptation or psychometric validation. The instrument takes risk and protective factors as its main constructs, and in most of the articles, both factors are checked (n=28). However, when the verification was one-sided, most studies (n=8) checked only risk factors, and only one identified protective factors. Regarding the four domains of CTCYS (community, school, family, and peer/individual), the prevalence (n= 22) was the use of the instrument in all its domains. However, according to the objective of the article, some surveys applying only a part of the questionnaire, and others using a part that interested them in making the data analysis.

IV. DISCUSSION

The prevention field has achieved many advances in recent times. However, some gaps remain to be resolved through research on the specificities of the population and their risk and protection profiles, as well as the impact of cultural, social, and political differences between developed and developing countries, among many other challenges (Maguire et al. 2011; Schenker and Minayo 2005). In this direction, it is important to have an instrument such as CTCYS that evaluates the various dimensions involved in risk and protective factors, and that may thus contribute to the consolidation of the theoretical model and evidence-based preventive interventions. Next, we present and analyze the results of the research that used CTCYS to check the risk and protective factors for alcohol and other drug abuse, many with similar outcomes in

different cultural contexts and countries, although some differences appeared in these findings.

The main correlation was related to age, since, as adolescents progress along the path of formal education, so do the risk rates of drug use. Studies conducted with CTCYS in Colombia (Obando et al. 2014; Zamora et al. 2018), United States (Cleveland et al. 2010; Forsyth et al. 2017; Saint-Jean et al. 2008), Australia (McMorris et al. 2007; Scholes-Balog et al. 2013), and Spain (Larrosa and Palomo 2012), confirmed the theory on the patterns evolution of drug use in the life cycle and the challenges for its prevention (Sloboda and Petras 2014).

Another recurring relationship is about gender. There is a higher prevalence of men, compared to women, in the rates of use of alcohol and other drugs. This correlation was confirmed in studies using CTCYS in Australia (Scholes-Balog et al. 2013), Colombia (Zamora et al. 2018), United States (Morrell et al. 2018; Saint-Jean 2010), Ethiopia (Birhanu et al. 2014), and Iran (Baheiraei et al. 2014b). These data corroborate an analysis of a historical series of data on alcohol use worldwide that confirms that men are more likely to drink than women (Hannah and Roser 2020). However, in a CTCYS survey conducted in the United States, women were more likely to use inhalants (Morrell et al. 2018). In Brazil, there was an increase in the use of alcohol by girls, approaching the standards of boys (IBGE 2016). In the world, UNODC (2019) confirmed that women use more tranquilizers without medical prescription than men, which is a public health problem. Therefore, gender issues are important factors to be analyzed in planning preventive actions.

Regarding the domains related to risk and protective factors, the peer/individual was more prevalent than the other domains (community, school, and family), with significant relation to the use of alcohol and other drugs in CTCYS researches in several countries, such as Colombia (Trujillo et al. 2018; Zamora et al. 2018), United States (Biggar Jr. et al. 2017; Feinberg et al. 2012; Hawkins et al. 2004), Iran (Baheiraei, Soltani, Ebadi, Cheraghi, and Foroushani 2014), and Thailand (Wongtongkam et al. 2014). Specific domains repeated these results, such as the category of "peers who use drugs," evidenced as one of the main risk factors, highlighted in 12 results, involving Australia (Kelly et al. 2012; Scholes-Balog et al. 2013), Colombia (Zamora et al. 2018), United States (Hawkins et al. 2004; Morrell et al. 2018; Oesterle et al. 2012), Ethiopia (Birhanu et al. 2014), Holland (Oesterle et al. 2012), Iran (Baheiraei et al. 2014a; Baheiraei, Soltani, Ebadi, Foroushani and Cheraghi 2017), Malaysia (Chan et al. 2016) and Thailand (Wongtongkam et al. 2014). Similarly, peer attitudes favorable to drug use presented a

significant relationship with alcohol and other drug abuse in six articles from different countries, such as Australia (Scholes-Balog et al. 2013), Colombia (Obando et al. 2014; Zamora et al. 2018), United States (Hawkins et al. 2004; Morrell et al. 2018), and Iran (Baheiraei et al. 2017). Transnational studies that compared the reality of Australia with the United States (Hemphill et al. 2011) and one with the Netherlands (Oesterle et al. 2012) found the same shreds of evidence. On the other hand, low perception of risk in drug use was pointed out by Colombia (Trujillo et al. 2018; Zamora et al. 2018), Spain (Larrosa and Palomo 2012), Ethiopia (Birhanu et al. 2014), and Iran (Baheiraei et al. 2017) as a factor that significantly predicts the abuse of alcohol and other drugs among young people. However, in a survey in Thailand, controversial results were found, since 63% of young people who considered the risks of drug use low were less likely to use alcohol (Wongtongkam et al. 2014). Theoretical reviews highlight the importance of peer influence in shaping adolescent identity, associated with approval, advice, and reproduction of peers and friends' lifestyles (Sloboda and Petras 2014).

Another relevant category about the risks for the use of alcohol and other drugs was the interaction with peers who exhibit antisocial behavior, which emerged in the United States (Hawkins et al. 2004; Feinberg et al. 2012), Colombia (Obando et al. 2014), Iran (Baheiraei et al. 2017), Thailand (Wongtongkam et al. 2014) and in both countries in the comparative study between Australia and the United States (Hemphill et al. 2011). On the other hand, favorable attitudes and rewards for antisocial behavior were another significant categories of risk in the samples from Australia (Hemphill et al. 2011), Spain (Larrosa and Palomo 2012), and the United States (Hemphill et al. 2011; Feinberg et al. 2012). However, in Thailand, paradoxically, adolescents with attitudes favorable to antisocial behavior were 60% less likely to use marijuana and 50% less likely to consume alcoholic beverages (Wongtongkam et al. 2014). These studies are related to others in criminology, which associate drug use, antisocial behavior, and delinquency (Murray et al. 2018).

Another important risk category to drug use in adolescence was the attitude of seeking intense sensations, as we have seen in studies in Australia (Scholes-Balog et al. 2013), Colombia (Trujillo et al. 2016), United States (Morrell et al. 2018), Iran (Baheiraei et al. 2017), and Thailand (Wongtongkam et al. 2014). Other review studies have defined pleasure-seeking as one of the main factors leading to early drug use by adolescents (Baumeister, and Nadal 2017) and as a risk factor in terms of mental health condition in teenagers (Pinto et al. 2014).

The characteristic of insubordination or rebelliousness was present in the research results in Australia (Hemphill et al. 2011; Scholes-Balog et al. 2013), United States (Hemphill et al. 2011; Oesterle et al. 2012), Netherlands (Oesterle et al. 2012), and Thailand (Wongtongkam et al. 2014) as a risk factor influencing the onset of drug abuse. In turn, in the research conducted in Colombia, insubordination predicted neither drug use nor antisocial behavior (Obando et al. 2014). The positive perception of oneself as "cool" is related to the popularity perceived among peers and usually appears as an important characteristic in the social relation with drug use (Hawkins 1999; Schenker and Minayo 2005). In this review, this result appears in Colombia (Trujillo et al. 2018) and the United States (Biggar Jr. et al. 2017). However, a survey that took into account the results of the United States and also of Australia, in a comparative way, revealed that the students gave little support to the use of drugs as fine or "cool" (Eisenberg et al. 2014).

The family risk factor with the highest rate in the results considers the parental attitudes that contribute to drug use. It was present in the results of six studies conducted with samples from Spain (Larrosa and Palomo 2012), United States (Morrell et al. 2018), Iran (Baheiraei et al. 2017), and Malaysia (Chan et al. 2016). Besides, there are two transnational studies: Australia - United States (Hemphill et al. 2011) and the Netherlands - United States (Oesterle et al. 2012), with evidence in both surveyed countries. The family history of drug use was also present at some extent in the results of a research conducted in Ethiopia (Birhanu et al. 2014), Iran (Baheiraei et al. 2014a; Baheiraei et al. 2017), United States, and Australia (Hemphill et al. 2011).

On the other hand, poor family-management was a risk factor associated with drug use in the results of Australia (Hemphill et al. 2011; Scholes-Balog et al. 2013), United States (Fagan et al. 2013; Hemphill et al. 2011), and Iran (Baheiraei et al. 2017). However, another survey conducted with an Iranian sample presented the opposite result, since, for men, all risk factors were predictors for lifetime tobacco use, except for family mismanagement (Baheiraei et al. 2014a). Another significant risk factor for drug use was the family conflicts, as shown in the results from Germany (Kuttler et al. 2016), Australia (Chan et al. 2013), Colombia (Trujillo et al. 2016), and Iran (Baheiraei et al. 2017). Finally, reinforcing the relation between drug use and antisocial behavior, the family risk factor that considers the parent attitudes that favor antisocial behavior was significant in predicting drug use in Spain (Larrosa and Palomo 2012), Australia, and United States (Hemphill et al. 2011). A meta-analysis investigation of 131 studies

corroborates the findings of this review, as it found that "risk of adolescent alcohol misuse is positively associated with the parental provision of alcohol, favorable parental attitudes towards alcohol, and parental drinking. It is negatively associated with parental monitoring, parent-child relationship quality, parental support, and parental involvement" (Yap et al. 2017, p. 1142); these last factors act as protective factors.

In terms of risk factors for the school dominion, low commitment to the school was a significant risk factor for drug use in countries such as Australia (Hemphill et al. 2011; Chan et al. 2013; Scholes-Balog et al. 2013), United States (Hemphill et al. 2011), Iran (Baheiraei et al. 2017), and Thailand (Wongtongkam et al. 2014). The risk factor related to the school failure spectrum was related to the use of alcohol and other drugs in studies conducted in Spain (Larrosa and Palomo 2012), Ethiopia (Birhanu et al. 2014), Iran (Baheiraei et al. 2017), and in collaboration research carried out in Australia and United States (Hemphill et al. 2011), with positive results on this relationship for both countries, and also in research involving only the North American specific context (Morrell et al. 2018). These data corroborate other research on school commitment and student health, which indicates that "students with lower academic commitment were more likely to report ever smoking, drinking alcohol, or misbehaving. Students with lower belonging were more likely to report ever drinking alcohol and engaging in school misbehavior" (Bonell et al. 2017, p. 217).

Regarding the CTSYS community domain, the perceived availability of drugs in the community was an important risk factor. Such ease of access was significant in studies from Australia (Scholes-Balog et al. 2013), Colombia (Zamora et al. 2018), Spain (Larrosa and Palomo 2012), Iran (Baheiraei et al. 2017) and in a transnational study between Australia and the United States (Hemphill et al. 2011), in both countries. In the same direction, the risk factor related to laws and norms favorable to drug use in the community was present in the findings of studies conducted in Australia (Hemphill et al. 2011; Scholes-Balog et al. 2013), Ethiopia (Birhanu et al. 2014), and Netherlands (Oesterle et al. 2012).

Lesser studies have emphasized the protective factors of drug use. The specialized literature has proven their value as moderators of risk factors (Catalano and Hawkins 1996; Hawkins 1999; Souza and Oliveira 2011). Among the articles analyzed in this study, one of them, conducted in Colombia, considered factors that are significant to protect, both from drug use and antisocial behavior. In its result, it concluded that the protective factors exert minor influences on the presence of antisocial behavior and drug

use compared to the strength of the risk factors (Obando et al. 2014).

As for the community dominion, the literature analysis made a caveat about the protecting factor related to the rewards for prosocial involvement in the community: in a survey conducted in Spain, this factor, when present as a characteristic of teenagers, indicated protection for the drug use (Larrosa and Palomo 2012); on the other hand, in the United States, community rewards for prosocial involvement predicted later drug use, proving to work in the opposite intended direction (Morrell et al. 2018). The opportunities and rewards of school for prosocial involvement proved to be an important protective factor for drug use, evidenced in studies in Australia (Bond et al. 2005), Spain (Larrosa and Palomo 2012), and Iran (Baheiraei et al. 2017). In contrast, this same school-oriented factor in Thailand does not contribute as mediating protective factors against the use of alcohol and illicit drugs, except in the case of marijuana (Wongtongkam et al. 2014).

The protective factors specific to the family domain that deserve mention are family rewards for prosocial involvement, present in results from Australia (Bond et al. 2005), Spain (Larrosa and Palomo 2012), and Iran (Baheiraei et al. 2017). Positive attachment to parents in Australia (Bond et al. 2005), Colombia (Trujillo et al. 2016), Spain (Larrosa and Palomo 2012), and United States (Fagan et al. 2013). For the latter, another US survey presented divergent results, with the perception of maternal affection predicting drug use instead of being a protective feature (Morrell et al. 2018).

The belief in the moral order usually appears in the literature as a protective factor for drug use of the peer/individual domain (Jonkman 2012; Monahan et al. 2014). This review based in CTCYS confirmed this correlation in studies from Australia (Bond et al. 2005; Hemphill et al. 2011), Colombia (Trujillo et al. 2018), Spain (Larrosa and Palomo 2012), and United States (Hawkins et al. 2004; Hemphill et al. 2011; Oesterle et al. 2012). In a survey conducted in the United States, negative beliefs about drug use predicted the use (Morrell et al. 2018), showing contradictory results. In the same way, participation in religious activities was present as a protected characteristic for the drug abuse in results from the United States (Hemphill et al. 2011), Ethiopia (Birhanu et al. 2014), and Iran (Baheiraei et al. 2017), even in countries with different religious beliefs. However, in one United States survey, the result was the opposite, since religious activity revealed drug use in adolescents (Morrell et al. 2018).

The findings here presented, evidenced through the application of the CTCYS, demonstrate an important relation between drug use and antisocial behavior, as well as criminal acts and antisocial behavior. On the other hand, opportunities and rewards for prosocial involvement were protective factors for drug use, being present in the results of various samples, at the community, school, and family/peer domains.

As evidenced by structural checks of the constituent theories of the SDM, involvement with people (family, friends, schoolmates, neighbors) who present antisocial behavior or attitudes that favor it directly affects the beliefs of the individuals about antisocial behavior. A similar protective effect occurs on the opportunities, rewards, and attitudes of prosocial involvement and positive emotional attachments. Socioemotional and cognitive abilities also exercise direct protection over antisocial behavior (Brown et al. 2005).

V. CONCLUSION

In this study, it was possible to verify that CTCYS performs a wide sensitive association between risk and protection factors to drug use in different domains. The selected studies demonstrated an important cultural and economic diversity in the countries that applied the CTCYS. The instrument showed that even in various cultural, linguistic, and ethnic contexts, there were similar results regarding these factors in the correlation with drug use. However, the amount of analysis on the topic is even more noticeable in developed countries. Therefore, there is still a gap to explore the performance of this tool in measuring risk and protection factors in low and middle-income countries.

There was a predominance of assessing risk factors over protectors since only two studies focused exclusively on the latter. Although most research considers both factors, the studies explored the risk further. This insufficient targeting of protective factors can lead to difficulties in using this tool in the context of health promotion programs or strategies. Health promotion has as its constitutive mark the attitude of moving away from the focus of diseases and seeking to enhance the positive aspects already present in the group or the territory. Consequently, knowledge of protective factors is crucial. For that reason, we recommend expanding studies on the protective factors measured by CTCYS that could expand the use of this instrument in the sense of health promotion actions.

It is worth mentioning some possible limitations of this study, which may exclude some articles. This situation

may occur due to the search key reach and the choice of bases that limit access to articles. We also have to consider that English is the predominant language of these databases, and we still need to reach articles in other languages. Likewise, the selected search algorithm may not have been sufficient to capture all the articles intended in the outlined objective. We have tried to overcome this gap by consulting experts and referring to the references of the chosen articles. However, we could miss some articles. In this study, the researchers selected to use only scientific articles due to their more homogeneous access and selection. However, we excluded other important sources of information such as reports, book chapters, dissertations, theses, or papers presented in conferences that might have contributed to this analysis. Another limitation to be mentioned is the fact that we did not use the standard protocol to analyze the quality of the studies individually, and we chose to evaluate the results jointly since we intend that the results of this review can support the cultural adaptation of CTCYS for Brazil.

The regularity of the findings in different countries demonstrates the efficiency of this instrument for this type of measurement. It confirms that CTCYS is consistent with the assumptions of its leading theory of change. Its wide use in different regions and cultures makes this questionnaire one of the most effective today for measuring risk and protective factors for youth, especially in drug use. The CTCYS seems to be a concrete, reliable, and exciting possibility for the research field in low and middle-income countries, considering its breadth and sensitivity, bringing useful perspectives for its applicability in Brazil.

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